LAKE CONESTEE

HUMAN HEALTH
RISK SCREENING & REVIEW

PERFORMED BY SCDHEC STAFF
SCREENING 2003
COVER LETTER 2005

IN CONJUNCTION WITH

TARGETED BROWNFIELDS ASSESSMENT

PERFORMED BY
PINNACLE CONSULTING GROUP

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

December 29, 2005

Jeffery L. Beacham, Ph.D., Executive Director
Conestee Foundation
PO Box 9111
Greenville, SC 29604

RE: Human Health Risk Screening
Lake Conestee, VCC
Greenville County

Dear Mr. Beacham:

The results of two rounds of assessment of sediment, soil, and surface water reported in the Targeted Brownfields Assessment Report (Pinnacle Consulting Group, March 8, 2001 and the Follow-up Targeted Brownfields Assessment Report (Zapata Engineering and Pinnacle Consulting Group, April 3, 2003) indicate that contaminants are present surface soil (composed of accreted sediments) above concentrations acceptable for unrestricted use of the property. Based on further evaluation of these results the Department has determined that while human exposure to Lake Conestee soil should be limited, the type and amount of exposure expected through occasional use of the property for recreation and as an environmental teaching center should not result in unacceptable risks to human health.

The Department arrived at this determination based on use of a risk calculator tool provided in the Risk Assessment Information System (RAIS) and available at http://risk.lsd.ornl.gov. The dose equations used in this risk calculator tool are based on guidance in *Risk Assessment Guidance for Superfund: Volume 1, Human Health Evaluation Manual (Part A - Baseline Risk Assessment), Risk Assessment Guidance for Superfund: Volume 1, Human Health Evaluation Manual (Part B - Development of Risk-based Preliminary Remediation Goals)* (RAGS).

More specifically, the Department utilized the risk calculator to determine risk from exposure to maximum detected concentrations for selected chemicals. Maximum concentrations of several chemicals detected in Lake Conestee sediments above EPA Region IX Preliminary Remediation Goals for residential use were run in the calculator using default parameters. Benzo-a-pyrene appears to be the driver for managing risk from human exposure to contaminants in Lake Conestee sediments. Thus, the maximum concentration of benzo-a-pyrene detected in Lake Conestee sediments was input into the risk calculator to evaluate risks calculated with various site-specific exposure scenarios. Several site-specific exposure scenarios were developed by modifying RAIS default residential exposure parameters-exposure duration, exposure frequency, and exposure time. The Department also developed additional site-specific exposure scenarios by modifying exposure parameters for the default RAIS excavation/construction worker exposure. The Department considers exposure

scenarios that do not exceed a risk of 10-6 to represent acceptable use of the Lake Conestee Property.

Table 1 summarizes the human health risks calculated for the various site-specific exposure scenarios utilized in the Department's risk screening. Exposure duration, exposure frequency and exposure time were the only parameters modified in these risk-screening calculations. RAIS default parameters were used for all of the other parameters (as identified in Appendix 1 for the default Residential scenario and in Appendix 2 for the default Construction/Excavation scenario). Printouts of all input parameters and the calculated risk for each exposure scenario listed in Table 1 are included in Appendix 3.

As presented in Table 1, the exposure scenarios that do not exceed a 10^{-6} risk, and are considered acceptable by the Department, are those for long-term recreational use that does not exceed four days per year for children to seven days per year for an adult. A short duration of exposure represented by the default excavation/construction worker scenario also is considered acceptable.

If you should have any questions regarding this letter or the Voluntary Cleanup Program, please contact me at 803-896-4121 or gormanak@dhec.sc.gov.

Sincerely,

Angela Gorman

Angela Gorman
Division of Site Assessment and Remediation
Bureau of Land and Waste Management

Enclosures

cc: Dave Hargett, North Wind, Inc. (with Table 1 and Appendices)
Susan Turner, Director, Region 2 EQC (with Table 1, w/o Appendices)
Gail Jeter, BLWM (with Table 1, w/o Appendices)
BLWM File 56418 (with Table1 and Appendices)

Table 1
Lake Conestee Soil Exposure Risk for Selected Exposure Scenarios

Exposure Scenarios	Exposure parameters				Total Soil Risk (Ingestion and Dermal)
	Exposure Duration (years)	Exposure Frequency (days/year)	Exposure time Outdoor (hour/hour)	Exposure time Indoor (hour/hour)	
The following exposure scenarios are based on the RAIS residential exposure scenario. Site- specific exposure scenarios are derived by modifying exposure duration, exposure frequency and exposure time only. Please see Appendix 1 for a list of all other input parameters.					
Residential (default exposure parameters)	Adult-24 Child-6	350	0.073	0.683	8.13E-05
Trespasser (Childhood through Adult)	Adult-24 Child-6	50	0.333	0	1.16E-05
Trespasser (Child)	Adult-0 Child-6	50	0.333	0	5.89E-06
Trespasser (Adult)	Adult-30 Child-0	50	0.333	0	7.16E-06
Researcher/Instructor (Adult)	Adult-10 Child-0	50	0.333	0	2.39E-06
Recreational (Childhood through Adult)	Adult-24 Child-6	4	0.333	0	9.29E07
Recreational (Child/Student)	Adult-0 Child-12	4	0.333	0	9.42E-07
Recreational/Researcher/Instructor (Adult)	Adult-30 Child-0	7	0.333	0	1E-06

Table 1 Continued

Exposure Scenarios	Exposure parameters				Total Soil Risk (Ingestion and Dermal)
	Exposure Duration (years)	Exposure Frequency (days/year)	Exposure time Outdoor (hour/hour)	Exposure time Indoor (hour/hour)	
The following exposure scenarios are based on the RAIS excavation/construction worker exposure scenario. Site-specific exposure scenarios are derived by modifying exposure duration, exposure frequency and exposure time only. Please see Appendix 2 for a list of all other input parameters					
Excavation/Construction Worker (default exposure parameters)	Adult-1 Child-0	20	0.333	NA	2.66E-7
Researcher/Instructor (Adult)	Adult-10 Child-0	50	0.333	NA	6.65E-06
Reseacher/Instructor (Adult)	Adult-10 Child-0	7	0.333	NA	9.31E-7

NA-Not applicable

8.13E-5 - Exceeds 10^{-6} Total Soil Risk

Total Soil Risk is calculated using the Risk Assessment Information System Human Health Risk Calculator. http://risk.lsd.ornl.gov/prg for benzo(a)pyrene at maximum detected concentration of 4.37 mg/kg